Kudzu KO'd by Fungus

A fungus from the sicklepod plant, *Arabis canadensis,* found in the southeastern United States, effectively controls kudzu. This invasive weed from southeast Asia covers more than 7 million U.S. acres and spreads across about 120,000 more each year.

Both greenhouse and field studies have shown the fungus *Myrothecium verrucaria* to be lethal to kudzu. Applied at different plant growth stages and under varying physical and environmental conditions, it proved to be 100 percent effective in controlling this fast-growing weed.

Originally, kudzu was promoted in the 1800s as an erosion control and cheap livestock forage for the eastern and southern United States. Now its control costs increase by nearly $6 million each year, and homeowners struggle to curb its quick growth up the sides of buildings, along fences, and on telephone poles. Typical controls include treating with herbicides and mowing, but they are not highly efficient.

Testing of the fungus on several economically important hardwood and softwood trees showed no harmful effects. And even though the fungus can injure and kill soybean plants, proper timing and application techniques minimize injury. In fact, directed-spray applications of the fungus to sicklepod seedlings in soybeans showed no resulting injury. Researchers will seek a patent. *C. Douglas Boyette, USDA-ARS Southern Weed Science Research Unit, Stoneville, Mississippi; phone (601) 686-5217, e-mail dboyette@ag.gov.*

Deconstructing Cotton's Fibers

Defects in processed cotton fabrics resulting from lint fiber imperfections cost U.S. textile makers millions annually. Now researchers are closing in on the biochemical bases for cotton lint's success as a durable, widely used natural plant fiber. This may help them further improve strength, uniformity, and other fiber properties desired by textile and clothing makers.

The scientists—working with Glycozyme, Inc., of Irvine, California—are modeling lint fiber's biochemical and physiological development in cotton bolls. Using samples collected from California, Mississippi, and South Carolina cottonfields, they're compiling data to show how environmental factors like day length, drought, or temperature changes affect fiber properties—especially imperfections like variable fiber thickness that can plague lint processing.

Ultimately, growers with such information will be better able to predict their crop's chief fiber properties before harvest and take steps to market it accordingly. *Judith Bradow, USDA-ARS Cotton Fiber Quality Research Unit, New Orleans, Louisiana; phone (504) 286-4479, e-mail jbradow@nola.srrc.usda.gov.*

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High-Tech Soy From Back-to-Basics Breeding

Oil from the new soybean called Soyola needs no hydrogenation to improve its usefulness for cooking, extend its shelf life, or harden it for baking and margarine. That's good news, because hydrogenation produces the bulk of dietary trans fats increasingly recognized as unhealthy for the heart. Also, Soyola evolved from conventional plant breeding methods. It's the first release under the Better Bean Initiative (BBI) launched in 1998 by the United Soybean Board. The initiative includes 22 scientists working in 11 public soybean-breeding programs.

Developed for the southern United States, Soyola yields oil with about half the linolenic acid of today's commercial varieties. This is the polyunsaturated fatty acid that degrades easily and causes "off" or rancid flavors in soyoil, especially after extended heating. Developers think Soyola—ideal for frying and salad oil markets—will help keep market options open and enhance the competitiveness of U.S. soybeans in world trade.

Future BBI plans call for breeding soybeans with reduced levels of both linolenic and palmitic acid (a saturated fat) and increased levels of heart-healthy oleic acid that's abundant in olive and canola oils. *Joseph W. Burton, USDA-ARS Soybean and Nitrogen Fixation Research Unit, Raleigh, North Carolina; phone (919) 515-2734, e-mail jburton@cropservl.cropsci.ncsu.edu.*

Microbes in Transplant Mix Boost Yields

By adding two naturally occurring soil microorganisms—*Paenobacillus macerans* and *Bacillus amyloliquefacien*—to a transplant mix called BioYield 213, scientists are reducing yield losses caused by soilborne pathogens. The mix gives the beneficial microorganisms the environment they need to grow on seedling roots. The microbes then stimulate vigorous growth and improve the health of transplanted seedlings by triggering the plants' resistance mechanisms.

Greenhouse producers can expect to grow seedlings in less time, and farmers can anticipate 5- to 20-percent yield increases in tomatoes, bell peppers, and even strawberries. When the beneficial microorganisms are combined with other alternative soil treatments, such as Telone II and Plantpro 45, levels of crop productivity approach those achieved with methyl bromide. This research is part of the ongoing ARS effort to provide farmers with alternatives to the soil fumigant methyl bromide, which is slated for phaseout by 2005. *Nancy K. Burelle, USDA-ARS U.S. Horticultural Research Laboratory, Fort Pierce, Florida; phone (561) 462-5861, e-mail nburelle@saa.ars.usda.gov.*